Warm Up answers

① $\frac{5x^5}{3y^3}$

② $\frac{(x+4)}{(x-3)(x-1)}$

③ $\frac{2x(x-1)}{3(x+7)(x-6)}$

④ $\frac{x^2+5x+3}{x-1}$

$$\frac{5(3x-3)}{(x-2)(x+3)} - \frac{(2x-1)}{(x-2)} \cdot \frac{(x+3)}{(x+3)}$$

$$-(x+2)$$

$$+ -x-2$$

LCD: $\underline{(x+3)\cdot(x-2)}$

$$\frac{3x^2-3x-6x+6}{(x+3)(x-2)} + \frac{-2x^2-6x+x+3}{(x+3)(x-2)} = \boxed{\frac{x^2-14x+9}{(x+3)(x-2)}}$$

$$\frac{(6)(x+2)}{(x+2)}\cdot\frac{(x+4)}{x}+\frac{(x^2+2x-5)}{(x+2)}\cdot\frac{x}{x}$$

LCD: $\underbrace{(x)\cdot(x+2)}$

$$\frac{x^2+6x+8}{x(x+2)}+\frac{x^3+2x^2-5x}{x(x+2)}=\boxed{\frac{x^3+3x^2+x+8}{x(x+2)}}$$

(9) $\frac{x}{x} \cdot \frac{4}{(x-1)(x+1)} + \frac{5}{x(x+1)} \cdot \frac{(x-1)}{(x-1)}$

LCD : $(x-1)(x+1) \cdot x$

$$\frac{4x}{x(x-1)(x+1)} + \frac{5x-5}{x(x+1)(x-1)} = \frac{9x-5}{x(x+1)(x-1)}$$

$$\frac{\frac{(x+2)}{(x+2)}\cdot\frac{10}{(x+3)(x-2)}}{x} - \frac{1}{(x+2)}\cdot\frac{(x+3)(x-2)}{(x+3)(x-2)}$$

LCD: $(x+3)\cdot(x-2)\cdot(x+2)$

$$\frac{x^2+2x}{(x+2)(x+3)(x-2)} + \frac{x^2-x+6}{(x+2)(x+3)(x-2)} = \frac{(x+6)}{(x+2)(x+3)(x-2)}$$

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(26) $\frac{5}{5} \cdot \frac{6}{4x^2} + \frac{2}{5x} \cdot \frac{4x}{4x}$

LCD: $4 \cdot x^2 \cdot 5 \cdot x$

LCD: $20x^2$

$$\frac{30}{20x^2} + \frac{8x}{20x^2} = \frac{8x+30}{20x^2} = \frac{2(4x+15)}{20x^2} = \boxed{\frac{4x+15}{10x^2}}$$

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(28) $\frac{x}{x} \cdot \frac{7}{6(x-2)} - \frac{x+3}{6x} \cdot \frac{(x-2)}{(x-2)}$

LCD: $6 \cdot (x-2) \cdot \cancel{6} \cdot x$

LCD: $6 \cdot x \cdot (x-2)$

$$\frac{7x}{6x(x-2)} + \frac{-x^2 \cancel{+3}x+6}{6x(x-2)}$$

$$\boxed{\frac{-x^2+6x+6}{6x(x-2)}}$$

(30) $\dfrac{10}{x^2-5x-14} + \dfrac{2}{(x-7)} \cdot \dfrac{(x+2)}{(x+2)}$

$(x-7)(x+2)$

LCD: $(x-7)(x+2)$

$$\frac{10}{(x-7)(x+2)} + \frac{2x+4}{(x-7)(x+2)} = \frac{2x+14}{(x-7)(x+2)}$$

(32) $\frac{(x+8)}{(x+8)}\cdot\frac{4x^2}{3x+5} - \frac{10}{x+8}\cdot\frac{(3x+5)}{(3x+5)}$

LCD: $(3x+5)(x+8)$

$$\frac{4x^3+35x^2}{(3x+5)(x+8)} - \frac{30x+50}{(x+8)(3x+5)}$$

$$= \boxed{\frac{4x^3+35x^2-30x-50}{(3x+5)(x+8)}}$$

(34) $\dfrac{x^2+x-3}{x^2-12x+32} + \dfrac{3x}{(x-8)} \cdot \dfrac{(x-4)}{(x-4)}$

$(x-8)(x-4)$

LCD: $(x-8)(x-4)$

$$\frac{x^2+x-3}{(x-8)(x-4)} + \frac{3x^2-12x}{(x-8)(x-4)} = \boxed{\frac{4x^2-11x-3}{(x-8)(x-4)}}$$

BONUS

$$\frac{4x}{(x+1)} \cdot \frac{5}{(2x-3)} - \frac{4}{(x)} \cdot \frac{(x+1)(2x-3)}{(x+1)(2x-3)}$$

LCD: $(x+1)(2x-3)(x)$

$$\frac{\quad}{LCD} + \frac{\quad}{LCD} - \frac{\quad}{LCD}$$

(36) $\dfrac{8x^3-15x^2+9x+12}{x(x+1)(2x+3)}$